

Childhood Obesity

A growing consensus supports the following definitions for children between 2 and 20 years of age ([table 2](#)):

Underweight – BMI <5th percentile for age and sex.

Normal weight – BMI between the 5th and 85th percentile for age and sex.

Overweight – BMI between the 85th and 95th percentile for age and sex.

Obese – BMI ≥95th percentile for age and sex.

Severe obesity – BMI ≥120 percent of the 95th percentile values, OR a BMI ≥35. This corresponds to approximately the 99th percentile, or BMI z-score ≥2.33 (ie, 2.33 standard deviations above the mean) ([8](#)).

Prevalence

Currently, almost one third of children and adolescents in the United States are either overweight or obese ([12](#)). The population is distributed into higher weight categories with advancing age, as shown below:

Overweight or obese (body mass index [BMI] ≥85 percentile)

26.7 percent of preschool children (2 to 5 years)
32.6 percent of school-aged children (6 to 11 years)
33.6 percent of adolescents (12 to 19 years)

Obese (BMI ≥95 percentile)

12.1 percent of preschool children
18.0 percent of school-aged children
18.4 percent of adolescents

Severe obesity (defined as a BMI ≥97 percentile for these data)

9.7 percent of preschool children
13.0 percent of school-aged children
13.0 percent of adolescents

Trends

Overall increase from 2000-2010 however there are regional and subgroup differences

As an example, childhood obesity in California declined overall between 2001 and 2008, but continued to increase for Black and American Indian girls ([23](#))

It is difficult to predict which overweight children will become obese adults. The likelihood of persistence of childhood obesity into adulthood is related to age ([29-31](#)), parental obesity ([32-34](#)), and severity of obesity

Effect of Maternal Factors During Gestation metabolic programming

Children born to women who have had gastric bypass surgery appear to have a lower prevalence of obesity than those born before gastric bypass, suggesting that reversal of maternal obesity had beneficial permanent effects on the metabolic profile of the offspring ([135](#)).

Treatment

Opening the Door

Initiate the discussion of weight management by acknowledging that some individuals gain weight more easily than others, or are “easy gainers.” then move on to say that such people may have to “work extra-hard” to keep a healthy body weight. We generally use the words “unhealthy weight” or “weight problem” because these terms are perceived by parents as more motivating and less stigmatizing than the terms “obese” or “fat” [9].

Recommendations for treatment of childhood obesity

| Stage | Staff and skills | Nutrition goals | Activity goals | Behavior intervention |
|---|---|---|--|--|
| 1: Prevention plus | Primary care provider | <ul style="list-style-type: none"> Encourage consumption of 5 or more servings of vegetables or fruit daily Minimize sugared beverages Eat breakfast every day Eat most meals at home and as a family | <ul style="list-style-type: none"> Less than 2 hours of television or other screen time per day More than 1 hour of physical activity daily | <ul style="list-style-type: none"> Reinforce goals at each health care visit; additional visits as tolerated Allow child to self-regulate; avoid overly strict eating regimens |
| 2: Structured weight management | Primary care physician or provider with additional training in nutrition or behavioral counseling (eg, dietitian) | Stage 1 plus: <ul style="list-style-type: none"> Daily eating plan, with scheduled meals and snacks Emphasize foods with low energy density Reduce frequency and quantity of foods with high energy density (eg, fried foods, baked goods, fats) Limit portion size Set explicit behavior goals | Stage 1 plus: <ul style="list-style-type: none"> Less than 1 hour of television or other screen time daily More than 1 hour of physical activity daily, supervised and structured | <ul style="list-style-type: none"> Monthly patient-provider contact Monitor eating and physical activities through logs Use positive reinforcement techniques (reward system) Strong parental involvement for school-aged children |
| 3: Comprehensive multidisciplinary intervention | Multidisciplinary team with childhood obesity expertise OR primary care-based program with counselor, dietitian, and use of structured outside activity program | Stage 2 plus: <ul style="list-style-type: none"> Structured diet and physical activity designed for negative energy balance | Similar to stage 2, supported by behavioral interventions | <ul style="list-style-type: none"> Weekly patient-provider contact (and/or phone) Similar, but with increased structure and accountability Parent training in behavioral techniques to improve home eating and activity environment |
| 4: Tertiary care intervention | Multidisciplinary team with childhood obesity expertise, including obesity medicine physician to rigorously assess comorbidities | As guided by established protocols. Various modalities are available, including: highly structured diets, medications, or bariatric surgery. | | |

Most children 2 years and older who are overweight or obese start at stage 1 (Prevention plus). Those who are older than 6 years progress to higher stages if there is no improvement in BMI percentile or trend after 3 to 6 months of treatment. Initiating treatment at higher stages of intervention is appropriate for children who are older, more severely obese (BMI >99th percentile) and motivated.

Based on information from: Spear BA, Barlow SE, Ervin C, et al. Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics* 2007; 120:S254.

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- Everything should be Family Centric, not child centric
- Long term behavior changes should be emphasized versus short term diet or exercise goals

Example and materials — Several groups have developed messaging to support this type of brief clinical intervention as outlined above. Materials to support patient education and practice process improvement are available at each of the following websites:

[5210 Let's go](http://www.lets-go.org/) (Maine Youth Overweight Collaborative) <http://www.lets-go.org/>

[National Initiative for Children's Healthcare quality](http://www.nichq.org/childhood_obesity/index.html) (NICHQ) http://www.nichq.org/childhood_obesity/index.html

[Eat smart move more](http://www.myeatsmartmovemore.com/SimpleTips.html) (North Carolina) <http://www.myeatsmartmovemore.com/SimpleTips.html>

[American Academy of Pediatrics](http://www2.aap.org/obesity/index.html) <http://www2.aap.org/obesity/index.html>